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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/499,720 | 02/08/2000 | Dale C. Morris | 10991915-1 | 1658 |

22879 7590 11/03/2004

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EXAMINER

INOA, MIDYS

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2188

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/499,720

Applicant(s)

MORRIS ET AL.

Examiner

Midys Inoa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication; even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section-made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Mahon et al. (4,809,160).

Regarding Claims 1 and 6, Mahon et al. discloses a method of promoting a current privilege level ("**cause the routine's privilege to be raised**") wherein the current privilege level controls application instruction execution in the system by controlling accessibility to the system resources (Column 1, line 55 – Column 2, line 45), the method comprising: performing a privilege level promotion instruction by the operating system **wherein the promotion is performed by a gateway instruction that is part of an operating system**, the privilege promotion instruction being stored in a first page of memory not writable by application instructions at a first privilege level ("store access rights of calling routine in T register") **wherein the privilege promotion instruction is represented by access rights since the right to access is dependent on the privilege level**, the privilege promotion instruction including: reading a stored previous privilege level state ("read access rights of calling routine"); comparing the read previous privilege level state to the current privilege level **wherein the current privilege level is represented by the access rights of the gateway instruction** ("Compare", "Access = OK?"); and if the previous privilege level state is equal to or less privileged than the

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current privilege level, promoting the current privilege level to a second privilege level which is higher than the first privilege level (“raise access rights to access rights of gateway”, see Figure 2).

Regarding Claims 12, 17 and 23 Mahon et al. discloses a computer system comprising a processor (Figure 1, Instruction Unit 20) having current privilege level which controls accessibility to the system resources (Column 1, line 55 – Column 2, line 45) and having a previous privilege level state (“access rights of page containing gateway”, Figure 2); a memory (Figure 1, Target Register File 80) having a plurality of memory pages including a first memory page storing a privilege promotion instruction (“Target Register 70”) and not writable by application instructions at a first privilege level (“store access rights of calling routine in T register”); and performing the privilege level promotion instruction as follows: reading a stored previous privilege level state (“read access rights of calling routine”); comparing the read previous privilege level state to the current privilege level (“Compare”, “Access = OK?”); and if the previous privilege level state is equal to or less privileged than the current privilege level, promoting the current privilege level to a second privilege level which is higher than the first privilege level (“raise access rights to access rights of gateway”, see Figure 2).

Regarding Claims 2, 8, 13, and 19, Mahon et al discloses the method of promoting a current privilege level wherein the step of performing the privilege promotion instruction further includes: if the previous privilege level state is more privileged then the current privilege level (“Access = No”), taking an illegal operation fault (“Trap Gateway”, see Figure 2).

Regarding Claims 3, 9, 14, and 20, Mahon et al discloses the method of promoting a current privilege level wherein the system resources include system registers (Figure 1, Target Register File 80 and Target Register 70).

Regarding Claims 4, 10, 15, and 21, Mahon et al discloses the method of promoting a current privilege level wherein the system resources include system instructions (“calling routine”, Figure 2).

Regarding Claims 5, 11, 16, and 22 Mahon et al discloses the method of promoting a current privilege level wherein the system resources include memory pages (Figure 1, Physical Memory 40).

Regarding Claim 7, 18, and 24 Mahon et al discloses the method of promoting a current privilege level further comprising: performing a return instruction including: transferring instruction control flow to the stored return address to the first page of memory (“execute service routine”, Figure 2); and demoting the current privilege level to the stored previous privilege level (“Return access rights of service routine per contents of the T register”, Figure 2).

Response to Arguments

3. Applicant's arguments filed on August 3rd, 2004 have been fully considered but they are not persuasive.

Applicant argues that the Mahon Patent does not teach or suggest, “promoting a current privilege level of a processor of a computer system controlled by an operating system”.

However, **Mahon discloses a method causing a routine's privilege to be raised** wherein the current privilege level controls application instruction execution in the system by controlling accessibility to the system resources (Column 1, line 55 – Column 2, line 45) **and wherein the**

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routing is a processor's routine in a computer system, the method comprising performing a privilege level promotion instruction by the operating system wherein the promotion is performed by a gateway instruction that is part of an operating system.

Applicant also argues that the Mahon Patent does not teach “reading a stored previous privilege level state; comparing the read previous privilege level state to the current privilege level; and if the previous privilege level state is equal to or less privileged than the current privilege level, promoting the current privilege level to a second privilege level which is higher than the first privilege level”. However, Mahon discloses reading a stored previous privilege level state **wherein the previous privilege level is represented by the access rights of the gateway since access rights are dependent on privilege levels**; comparing the read previous privilege level state to the current privilege level **as shown on Figure 2 as the compare operation of the gateway's privilege level and the calling routine's privilege level**; and if the previous privilege level state is equal to or less privileged than the current privilege level, promoting the current privilege level to a second privilege level which is higher than the first privilege level **wherein the promotion operation is illustrated in Figure 2 as the step of raising the access right to that of the gateway.**

Additionally, applicant argues that The Mahon. Patent fails to disclose performing a call instruction to a second page of memory not writable by the application instructions at the first privilege level, the call instruction including: storing a return address to the first page of memory; and storing the first privilege level in a previous privilege level state. The examiner disagrees with this assertion. Mahon discloses performing a call instruction to a second page of memory not writable by the application instructions at the first privilege level **wherein the**

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second call instruction is the calling routine of figure 2, the call instruction including: storing a return address to the first page of memory wherein the return address is stored in Target Register 70 as shown in figure 3 (Column 3, lines 38-68); and storing the first privilege level in a previous privilege level state wherein such privilege level is stored in Address location 310 of the target register 70 as shown in Figure 3.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Midys Inoa whose telephone number is (571) 272-4207. The examiner can normally be reached on M-F 7:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Midys Inoa

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Examiner
Art Unit 2188

MI

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11/1/04
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